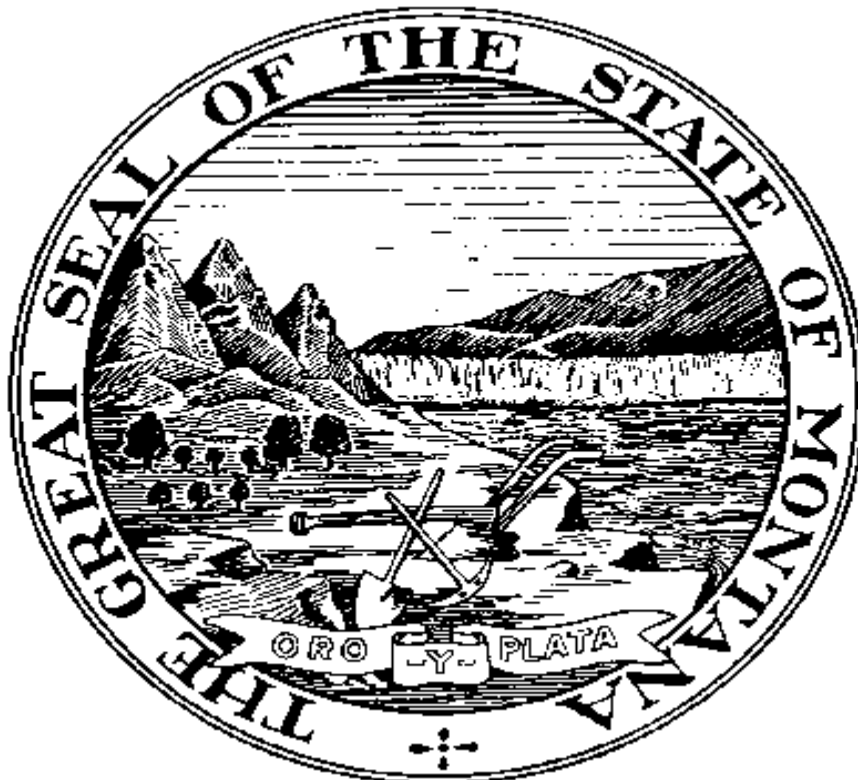


Agricultural Safety

Agriculture Standards 29 CFR 1928

Occupational Safety and Health Bureau



Montana Department of Labor & Industry

**Prepared for Montana Employers
by the**

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Agricultural Safety

Working Safely Around Agricultural Machinery

I. Inspections

All operators of machinery need to be trained on operation and safety precaution of the machinery. Before operation of any machinery a safety inspection should be performed to identify and eliminate machine defects and safety hazards. Before operating equipment, you should:

Inspect all safety guards, including chain guards. If any guards are missing or broken, notify your supervisor immediately so they can be replaced or repaired.

Keep machine parts clean and free of accumulation of crop material, dirt or debris.

Check all of the hydraulic lines and fuel lines to make sure they are securely fastened and in good condition.

Notify your supervisor if you notice any leaks and bad connections so they can be repaired or replaced. Check hydraulic lines for pinhole leaks using cardboard only.

Make certain that all stops and seeds are set correctly.

Check to make sure that the tension belts and chain drives are adjusted properly.

Never operate any equipment that is not in safe working condition.

II. Look Around Before Starting The Equipment

Adjust your seat so you easily reach all controls and see all gauges and indicator lights.

After you have completed the initial safety inspection, you can turn on the power.

Make sure that everyone is at a safe distance away from the machine before starting.

Keep your mind on your work. Most agricultural machines require your concentration in order for the process to run safely and efficiently. Do your best to avoid distractions from your job.

Never by-pass start any equipment. If the machine does not start the way it was designed, inform your supervisor.

III. Wear Proper Clothing

No jewelry or loose-fitting clothing should be worn while operating agricultural machinery. Machines that have revolving parts can easily entangle jewelry and baggy clothes, drawing you into the machine very quickly. Make sure shirts that have buttons are buttoned together at the cuffs and front, and clothing with zippers are zipped up.

IV. Leave The Guards On The Machine

If it is necessary for you to remove a safety guard, first get permission from your supervisor and make sure the machine is locked out. Replace the guards immediately when the adjustment or repair is completed.

V. Lockout/Blockout Procedures

If the machine you are working with jams or gets caught up on something, turn off the power and lock it in the “off” position. You must do this **FIRST** before you attempt to make any adjustments. The lockout/blockout procedure is to be followed immediately when you discover the machine is malfunctioning. **NEVER** leave a machine running when unattended. Never attempt to repair the machine yourself; however, inform your supervisor immediately after locking it out.

A lockout procedure consists of putting a lock on the part of the machine that controls the power to prevent it from being turned back on. To begin a lockout procedure, turn off the power to the machine and lock the switch, valve or block with a lock and key that is only used for lockout purposes. It is very important that the machine is locked off and not just switched off. Many deaths and serious injuries occur each year when a machine is turned back on while another worker is inside it making the necessary repair.

Use the lockout procedure whenever possible; only use the tag-out method when a lockout method is unavailable. A tag-out means using special tags that warn others of the danger of starting up the machine. A tag should have a printed warning of what could happen if the power to the machine is turned on, and must be tough enough so it can't be removed accidentally. Remember, tags alone do not prevent equipment from starting. They are only warnings.

VI. Stay Clear of Unshielded Moving Parts

Unshielded moving part, such as snapping or husking rolls, straw spreaders and choppers, cutterbars, discs, and feed rolls, cannot be shielded to protect workers and still operate correctly. It is important that machine operators concentrate on their work and watch their movements and clothing around machinery. Do not allow other people to go near unshielded moving parts, except when the machine is locked out and the person is qualified and authorized to make adjustments or repairs.

VII. If You Feel Ill, Stay Off the Machine

Do not operate any machine, large or small, if you are feeling sick. If you are not well, notify your supervisor. Illnesses and fevers can dampen your judgment and can create hazardous working conditions. It's not worth the risk of injury.

VIII. Use Good Housekeeping to Prevent Accidents

Keeping the work area and machine clean and free of clutter should become a habit for all workers. Keeping walkways clear of clutter helps prevent slips and falls and also reduce the risk of fires. All platforms and access ladders or steps should be kept free from grease, dirt or debris by washing them with soap and water regularly. If workers must go to the top of the machine, they must clean their shoes and boots and use the handrail as they climb. Never jump down from the top of the machine, use ladders or steps.

IX. Use Hand Signals When Noise Level Is High

If noise levels are too high to properly communicate workers need to use standard hand signals. Employers should establish standard hand signals that are used by everyone.

X. Never Permit Riders

Do not permit riders on any moving equipment, such as tractors, forklifts, etc., even if it is for a short distance. While moving the equipment, keep your eyes watching for bystanders who may not see you coming, and always travel at a safe, slow speed. If your machine is heavy and very large, check out your path in advance for clearances, obstructions, and ditches; locate an alternate route if you are encountered. Drive with extra care if visibility is limited due to rain or fog, or if ground conditions are ice, wet or very dusty.

Always wear seatbelts, even if the machinery is equipped with ROPS. Seatbelts prevent you from being thrown from an over-turning vehicle that could crush you from its weight.

Agriculture Standards 29 CFR 1928

1928.21 – Applicability of Standards in 29 CFR Part 1910

Subpart B –Applicability of Standards

(a) The following standards in part 1910 of this Chapter shall apply to agricultural operations:

(a)(1) Temporary labor camps - 1910.142;

(a)(2) Storage and handling of anhydrous ammonia - 1910.111(a) and (b);

(a)(3) Logging Operations - 1910.266;

(a)(4) Slow-moving vehicles - 1910.145.

(a)(5) Hazard communication - 1910.1200.

(a)(6) Cadmium - 1910.1027.

(a)(7) Retention of DOT markings, placards and labels - 1910.1201.

(b) Except to the extent specified in paragraph (a) of this section, the standards contained in Subparts B through T and Subpart Z of part 1910 of this title do not apply to agricultural operations.

(Section 1928.21 contains a collection of information which has been approved by the Office of Management and Budget under OMB Control No. 1218-0072)

[40 FR 18257, Apr. 25, 1975, as amended at 42 FR 38569, July 29, 1977; 52 FR 31886, Aug. 24, 1987; 59 FR 6184, Feb. 9, 1994; 59 FR 36700, July 19, 1994; 59 FR 51748, Oct. 12, 1994; 61 FR 5510, Feb. 13, 1996; 61 FR 9255, March 7, 1996]

1928.51 Subpart C –Roll-over Protective Structures (ROPS)

(a) Definitions. As used in this subpart -

"Agricultural tractor" means a two or four-wheel drive type vehicle, or track vehicle, of more than 20 engine horsepower, designed to furnish the power to pull, carry, propel, or drive implements that are designed for agriculture. All self-propelled implements are excluded.

"Low profile tractor" means a wheeled tractor possessing the following characteristics:

(a)(1) The front wheel spacing is equal to the rear wheel spacing, as measured from the centerline of each right wheel to the centerline of the corresponding left wheel.

(a)(2) The clearance from the bottom of the tractor chassis to the ground does not exceed 18 inches.

(a)(3) The highest point of the hood does not exceed 60 inches, and

(a)(4) The tractor is designed so that the operator straddles the transmission when seated. "Tractor weight" includes the protective frame or enclosure, all fuels, and other components required for normal use of the tractor. Ballast shall be added as necessary to achieve a minimum total weight of 110 lb. (50.0 kg.) per maximum power take-off horse power at the rated engine speed or the maximum, gross vehicle weight specified by the manufacturer, whichever is the greatest. From end weight shall be at least 25 percent of the tractor test weight. In case power take-off horsepower is not available, 95 percent of net engine flywheel horsepower shall be used.

(b) General requirements. Agricultural tractors manufactured after October 25, 1976, shall meet the following requirements:

(b)(1) Roll-over protective structures (ROPS). A roll-over protective structures (ROPS) shall be provided by the employer for each tractor operated by an employee. Except as provided in paragraph (b)(5) of this section, ROPS used on wheel-type tractors shall meet the test and performance requirements of the American Society of Agricultural Engineers Standard (ASAE) Standard S306.3-1974 entitled "Protective Frame for Agricultural Tractors -- Test Procedures and Performance Requirements" and Society of Automotive Engineers (SAE) Standard J334-1970, entitled "Protective Frame Test Procedures and Performance Requirements" (formerly codified in 29 CFR 1928.52); or ASAE Standard S336.1-1974, entitled "Protective Enclosures for Agricultural Tractors - Test Procedures and Performance Requirements" and SAE J168-1970, entitled "Protective Enclosures - Test Procedures and Performance Requirements" (formerly codified in 29 CFR 1928.53)(1); or 1926.1002 of OSHA's construction standards. These ASAE and SAE standards are incorporated by reference and have been approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from either the American Society of Agricultural Engineers Standard, 2950 Niles Road, Post Office Box 229, St. Joseph, MI 49085, or the Society of Automotive Engineers, 485 Lexington Avenue, New York, NY 10017. Copies may be inspected at the OSHA Docket Office, U.S. Department of Labor, 200 Constitution Ave., NW., Room N2634, or at the Office of the Federal Register, 800 North Capitol St., NW., Suite 700, Washington, D.C. ROPS used on track-type tractors shall meet the test and performance requirement of 1926.1001 of this title.

Footnote(1) In March 1977, the American Society of Agricultural Engineers merged S306 and S336, along with Standard 305, entitled "Operator Protection for Wheel Type Agricultural Tractors," into ASAE S383, which addresses ROPS for wheeled agricultural tractors.

(b)(2) Seatbelts.

(b)(2)(i) Where ROPS are required by this section, the employer shall:

(b)(2)(i)(A) Provide each tractor with a seatbelt which meets the requirements of this paragraph;

(b)(2)(i)(B) Ensure that each employee tightens the seatbelt sufficiently to confine the employee to the protected area provided by the ROPS.

(b)(2)(ii) Each seatbelt shall meet the requirements set forth in Society of Automotive Engineer Standard SAE J4C, 1965 Motor Vehicle Seat Belt Assemblies(2), except as noted hereafter:

Footnote(2) Copies may be obtained from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, Pa. 15096.

(b)(2)(ii)(A) Where a suspended seat is used, the seatbelt shall be fastened to the movable portion of the seat to accommodate a ride motion of the operator.

(b)(2)(ii)(B) The seatbelt anchorage shall be capable of withstanding a static tensile load of 1,000 pounds (453.6 kg) at 45 degrees to the horizontal equally divided between the anchorages. The seat mounting shall be capable of withstanding this load plus a load equal to four times the weight of all applicable seat components applied at 45 degrees to the horizontal in a forward and upward direction. In addition, the seat mounting shall be capable of withstanding a 500 pound (226.8 kg) belt load plus two times the weight of all applicable seat components both applied at 45 degrees to the horizontal in and upward and rearward direction. Floor and seat deformation is acceptable provided there is not structural failure or release of the seat adjusted mechanism or other locking device.

(b)(2)(ii)(C) The seatbelt webbing material shall have a resistance to acids, alkalies, mildew, aging, moisture, and sunlight equal to or better than that of untreated polyester fiber.

(b)(3) Protection from spillage. Batteries, fuel tanks, oil reservoirs, and coolant systems shall be constructed and located or sealed to assure that spillage will not occur which may come in contact with the operator in the event of an upset.

(b)(4) Protection from sharp surfaces. All sharp edges and corners at the operator's station shall be designed to minimize operator injury in the event of an upset.

(b)(5) Exempted uses. Paragraphs (b)(1) and (b)(2) of this section do not apply to the following uses:

(b)(5)(i) "Low profile" tractors while they are used in orchards, vineyards or hop yards where the vertical clearance requirements would substantially interfere with normal operations, and while their use is incidental to the work performed therein.

(b)(5)(ii) "Low profile" tractors while used inside a farm building or greenhouse in which the vertical clearance is insufficient to allow a ROPS equipped tractor to operate, and while their use is incidental to the work performed therein.

(b)(5)(iii) Tractors while used with mounted equipment which is incompatible with ROPS (e.g. cornpickers, cotton strippers, vegetable pickers and fruit harvesters).

(b)(6) Remounting. Where ROPS are removed for any reason, they shall be remounted so as to meet the requirements of this paragraph.

(c) Labeling. Each ROPS shall have a label, permanently affixed to the structure, which states:

(c)(1) Manufacturer's or fabricator's name and address;

(c)(2) ROPS model number, if any;

(c)(3) Tractor makes, models, or series numbers that the structure is designed to fit; and

(c)(4) That the ROPS model was tested in accordance with the requirements of this subpart.

(d) Operating instructions. Every employee who operates an agricultural tractor shall be informed of the operating practices contained in Appendix A of this part and of any other practices dictated by the work environment. Such information shall be provided at the time of initial assignment and at least annually thereafter.

[61 FR 9227, March 7, 1996]

1928 Subpart C Appendix A. Roll-over Protective Structures

- 1) Securely fasten your seat belt if the tractor has a ROPS.
- 2) Where possible, avoid operating the tractor near ditches, embankments, and holes.
- 3) Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces.
- 4) Stay off slopes too steep for safe operation.
- 5) Watch where you are going, especially at row ends, on roads, and around trees.
- 6) Do not permit others to ride.
- 7) Operate the tractor smoothly - no jerky turns, starts, or stops.
- 8) Hitch only to the drawbar and hitch points recommended by tractor manufacturers.
- 9) When tractor is stopped, set brakes securely and use park lock if available.

1928.57 -Guarding of farm field equipment, farmstead equipment, and cotton gins.
SubPart D Safety for Agricultural Equipment

(a) General -

(a)(1) Purpose. The purpose of this section is to provide for the protection of employees from the hazards associated with moving machinery parts of farm field equipment, farmstead equipment, and cotton gins used in any agricultural operation.

(a)(2) Scope. Paragraph (a) of this section contains general requirements which apply to all covered equipment. In addition, paragraph (b) of this section applies to farm field equipment, paragraph (c) of this section applies to farmstead equipment, and paragraph (d) of this section applies to cotton gins.

(a)(3) Application. This section applies to all farm field equipment, farmstead equipment, and cotton gins, except that paragraphs (b)(2), (b)(3), and (b)(4) (ii)(A), and (c)(2), (c)(3), and (c)(4) (ii)(A) do not apply to equipment manufactured before October 25, 1976.

(a)(4) Effective date. This section takes effect on October 25, 1976, except that paragraph (d) of this section is effective on June 30, 1977.

(a)(5) Definitions -

"Cotton gins" are systems of machines which condition seed cotton, separate lint from seed, convey materials, and package lint cotton.

"Farm field equipment" means tractors or implements, including self-propelled implements, or any combination thereof used in agricultural operations.

"Farmstead equipment" means agricultural equipment normally used in a stationary manner. This includes, but is not limited to, materials handling equipment and accessories for such equipment whether or not the equipment is an integral part of a building.

"Ground driven components" are components which are powered by the turning motion of a wheel as the equipment travels over the ground.

A "guard" or "shield" is a barrier designed to protect against employee contact with a hazard created by a moving machinery part.

"Power take-off shafts" are the shafts and knuckles between the tractor, or other power source, and the first gear set, pulley, sprocket, or other components on power take-off shaft driven equipment.

(a)(6) Operating instructions. At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all covered

equipment with which he is or will be involved, including at least the following safe operating practices:

(a)(6)(i) Keep all guards in place when the machine is in operation;

(a)(6)(ii) Permit no riders on farm field equipment other than persons required for instruction or assistance in machine operation;

(a)(6)(iii) Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct employees as to all steps and procedures which are necessary to safely service or maintain the equipment;

(a)(6)(iv) Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine;

(a)(6)(v) Lock out electrical power before performing maintenance or service on farmstead equipment.

(a)(7) Methods of guarding. Except as otherwise provided in this subpart, each employer shall protect employees from coming into contact with hazards created by moving machinery parts as follows:

(a)(7)(i) Through the installation and use of a guard or shield or guarding by location;

(a)(7)(ii) Whenever a guard or shield or guarding by location is infeasible, by using a guardrail or fence.

(a)(8) Strength and design of guards.

(a)(8)(i) Where guards are used to provide the protection required by this section, they shall be designed and located to protect against inadvertent contact with the hazard being guarded.

(a)(8)(ii) Unless otherwise specified, each guard and its supports shall be capable of withstanding the force that a 250-pound individual, leaning on or falling against the guard, would exert upon that guard.

(a)(8)(iii) Guards shall be free from burrs, sharp edges, and sharp corners, and shall be securely fastened to the equipment or building.

(a)(9) Guarding by location. A component is guarded by location during operation, maintenance, or servicing when, because of its location, no employee can inadvertently come in contact with the hazard during such operation, maintenance, or servicing. Where the employer can show that any exposure to hazards results from employee conduct which constitutes an isolated and unforeseeable event, the component shall also be considered guarded by location.

(a)(10) Guarding by railings. Guardrails or fences shall be capable of protecting against employees inadvertently entering the hazardous area.

(a)(11) Servicing and maintenance. Whenever a moving machinery part presents a hazard during servicing or maintenance, the engine shall be stopped, the power source disconnected, and all machine movement stopped before servicing or maintenance is performed, except where the employer can establish that:

(a)(11)(i) The equipment must be running to be properly serviced or maintained;

(a)(11)(ii) The equipment cannot be serviced or maintained while a guard or guards otherwise required by this standard are in place; and

(a)(11)(iii) The servicing or maintenance can be safely performed.

(b) Farm field equipment -

(b)(1) Power take-off guarding.

(b)(1)(i) All power take-off shafts, including rear, mid- or side-mounted shafts, shall be guarded either by a master shield, as provided in paragraph (b)(1)(ii) of this section, or by other protective guarding.

(b)(1)(ii) All tractors shall be equipped with an agricultural tractor master shield on the rear power take-off except where removal of the tractor master shield is permitted by paragraph (b)(1)(iii) of this section. The master shield shall have sufficient strength to prevent permanent deformation of the shield when a 250-pound operator mounts or dismounts the tractor using the shield as a step.

(b)(1)(iii) Power take-off driven equipment shall be guarded to protect against employee contact with positively driven rotating members of the power drive system. Where power take-off driven equipment is of a design requiring removal of the tractor master shield, the equipment shall also include protection from that portion of the tractor power take-off shaft which protrudes from the tractor.

(b)(1)(iv) Signs shall be placed at prominent locations on tractors and power take-off driven equipment specifying that power drive system safety shields must be kept in place.

(b)(2) Other power transmission components.

(b)(2)(i) The mesh or nip-points of all power driven gears, belts, chains, sheaves, pulleys, sprockets, and idlers shall be guarded.

(b)(2)(ii) All revolving shafts, including projections such as bolts, keys, or setscrews, shall be guarded, except smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means.

(b)(2)(iii) Ground driven components shall be guarded in accordance with paragraphs (b)(2)(i) and (b)(2)(ii) of this section if any employee may be exposed to them while the drives are in motion.

(b)(3) Functional components. Functional components, such as snapping or husking rolls, straw spreaders and choppers, cutterbars, flail rotors, rotary beaters, mixing augers, feed rolls, conveying augers, rotary tillers, and similar units, which must be exposed for proper function, shall be guarded to the fullest extent which will not substantially interfere with normal functioning of the component.

(b)(4) Access to moving parts.

(b)(4)(i) Guards, shields, and access doors shall be in place when the equipment is in operation.

(b)(4)(ii) Where removal of a guard or access door will expose an employee to any component which continues to rotate after the power is disengaged, the employer shall provide, in the immediate area, the following:

(b)(4)(ii)(A) A readily visible or audible warning of rotation; and

(b)(4)(ii)(B) A safety sign warning the employee to:

(b)(4)(ii)(B)(1) Look and listen for evidence of rotation; and

(b)(4)(ii)(B)(2) Not remove the guard or access door until all components have stopped.

(c) Farmstead equipment -

(c)(1) Power take-off guarding.

(c)(1)(i) All power take-off shafts, including rear, mid-, or side-mounted shafts, shall be guarded either by a master shield as provided in paragraph (b)(1)(ii) of this section or other protective guarding.

(c)(1)(ii) Power take-off driven equipment shall be guarded to protect against employee contact with positively driven rotating members of the power drive system. Where power take-off driven equipment is of a design requiring removal of the tractor master shield, the equipment shall also include protection from that portion of the tractor power take-off shaft which protrudes from the tractor.

(c)(1)(iii) Signs shall be placed at prominent locations on power take-off driven equipment specifying that power drive system safety shields must be kept in place.

(c)(2) Other power transmission components.

(c)(2)(i) The mesh or nip-points of all power driven gears, belts, chains, sheaves, pulleys, sprockets, and idlers shall be guarded.

(c)(2)(ii) All revolving shafts, including projections such as bolts, keys, or set screws, shall be guarded, with the exception of:

(c)(2)(ii)(A) Smooth shafts and shaft ends (without any projecting bolts, keys or set screws), revolving at less than 10 rpm, on feed handling equipment used on the top surface of materials in bulk storage facilities; and

(c)(2)(ii)(B) Smooth shaft ends protruding less than one-half the outside diameter of the shaft and its locking means.

(c)(3) Functional components.

(c)(3)(i) Functional components, such as choppers, rotary beaters, mixing augers, feed rolls, conveying augers, grain spreaders, stirring augers, sweep augers, and feed augers, which must be exposed for proper function, shall be guarded to the fullest extent which will not substantially interfere with the normal functioning of the component.

(c)(3)(ii) Sweep arm material gathering mechanisms used on the top surface of materials within silo structures shall be guarded. The lower or leading edge of the guard shall be located no more than 12 inches above the material surface and no less than 6 inches in front of the leading edge of the rotating member of the gathering mechanism. The guard shall be parallel to, and extend the fullest practical length of, the material gathering mechanism.

(c)(3)(iii) Exposed auger flighting on portable grain augers shall be guarded with either grating type guards or solid baffle style covers as follows:

(c)(3)(iii)(A) The largest dimensions or openings in grating type guards through which materials are required to flow shall be 4 3/4 inches. The area of each opening shall be no larger than 10 square inches. The opening shall be located no closer to the rotating flighting than 2 1/2 inches.

(c)(3)(iii)(B) Slotted openings in solid baffle style covers shall be no wider than 1 1/2 inches, or closer than 3 1/2 inches to the exposed flighting.

(c)(4) Access to moving parts.

(c)(4)(i) Guards, shields, and access doors shall be in place when the equipment is in operation.

(c)(4)(ii) Where removal of a guard or access door will expose an employee to any component which continues to rotate after the power is disengaged, the employer shall provide, in the immediate area, the following:

(c)(4)(ii)(A) A readily visible or audible warning of rotation; and

(c)(4)(ii)(B) A safety sign warning the employee to:

(c)(4)(ii)(B)(1) Look and listen for evidence of rotation; and

(c)(4)(ii)(B)(2) Not remove the guard or access door until all components have stopped.

(c)(5) Electrical disconnect means.

(c)(5)(i) Application of electrical power from a location not under the immediate and exclusive control of the employee or employees maintaining or servicing equipment shall be prevented by:

(c)(5)(i)(A) Providing an exclusive, positive locking means on the main switch which can be operated only by the employee or employees performing the maintenance or servicing; or

(c)(5)(i)(B) In the case of material handling equipment located in a bulk storage structure, by physically locating on the equipment an electrical or mechanical means to disconnect the power.

(c)(5)(ii) All circuit protection devices, including those which are an integral part of a motor, shall be of the manual reset type, except where:

(c)(5)(ii)(A) The employer can establish that because of the nature of the operation, distances involved, and the count of time normally spent by employees in the area of the affected equipment, use of the manual reset device would be infeasible;

(c)(5)(ii)(B) There is an electrical disconnect switch available to the employee within 15 feet of the equipment upon which maintenance or service is being performed; and

(c)(5)(ii)(C) A sign is prominently posted near each hazardous component which warns the employee that, unless the electrical disconnect switch is utilized, the motor could automatically reset while the employee is working on the hazardous component.

(d) Cotton ginning equipment -

(d)(1) Power transmission components.

(d)(1)(i) The main drive and miscellaneous drives of gin stands shall be completely enclosed, guarded by location, or guarded by railings (consistent with the requirements of paragraph (a)(7) of this section). Drives between gin stands shall be guarded so as to prevent access to the area between machines.

(d)(1)(ii) When guarded by railings, any hazardous component within 15 horizontal inches of the rail shall be completely enclosed. Railing height shall be approximately 42 inches off the floor, platform, or other working surface, with a midrail between the top-rail and the working surface. Panels made of materials conforming to the requirements in Table D-1, or equivalent, may be substituted for midrails. Guardrails shall be strong enough to withstand at least 200 pounds force on the toprail.

(d)(1)(iii) Belts guarded by railings shall be inspected for defects at least daily. The machinery shall not be operated until all defective belts are replaced.

**TABLE D-1 EXAMPLES OF MINIMUM
REQUIREMENTS FOR GUARD PANEL MATERIALS**

Material	Clearance from moving parts at all points (in inches)	Largest mesh or opening allowable (in inches)	Minimum gage (U.S. standard or thickness)
Woven wire	Under 2.....	3/8	16
	2 to 4.....	1/2	16
	4 to 15.....	2	12
Expanded Metal	Under 4.....	1/2	18
	4 to 15.....	2	13
Perforated Metal	Under 4.....	1/2	20
	4 to 15.....	2	14
Sheet Metal	Under 4.....	22
	4 to 15.....	22
Plastic	Under 4.....	(1)
	4 to 15.....	(1)

Footnote(1): Tensile strength of 10,000 lb./in(2)

(d)(1)(iv) Pulleys of V-belt drives shall be completely enclosed or guarded by location whether or not railings are present. The open end of the pulley guard shall be not less than 4 inches from the periphery of the pulleys.

(d)(1)(v) Chains and sprockets shall be completely enclosed, except that they may be guarded by location if the bearings are packed or if accessible extension lubrication fittings are used.

(d)(1)(vi) Where complete enclosure of a component is likely to cause a fire hazard due to excessive deposits of lint, only the face section of nip-point and pulley guards is required. The guard shall extend at least 6 inches beyond the rim of the pulley on the in-running and off-running sides of the belt, and at least 2 inches from the rim and face of the pulley in all other directions.

(d)(1)(vii) Projecting shaft ends not guarded by location shall present a smooth edge and end, shall be guarded by non-rotating caps or safety sleeves, and may not protrude more than one-half the outside diameter of the shaft.

(d)(1)(viii) In power plants and power development rooms where access is limited to authorized personnel, guard railings may be used in place of guards or guarding by location. Authorized

employees having access to power plants and power development rooms shall be instructed in the safe operation and maintenance of the equipment in accordance with paragraph (a)(6) of this section.

(d)(2) Functional components.

(d)(2)(i) Gin stands shall be provided with a permanently installed guard designed to preclude contact with the gin saws while in motion. The saw blades in the roll box shall be considered guarded by location if they do not extend through the ginning ribs into the roll box when the breast is in the out position.

(d)(2)(ii) Moving saws on lint cleaners which have doors giving access to the saws shall be guarded by fixed barrier guards or their equivalent which prevent direct finger or hand contact with the saws while the saws are in motion.

(d)(2)(iii) An interlock shall be installed on all balers so that the upper gates cannot be opened while the tramper is operating.

(d)(2)(iv) Top panels of burr extractors shall be hinged and equipped with a sturdy positive latch.

(d)(2)(v) All accessible screw conveyors shall be guarded by substantial covers or gratings, or with an inverted horizontally slotted guard of the trough type, which will prevent employees from coming into contact with the screw conveyor. Such guards may consist of horizontal bars spaced so as to allow material to be fed into the conveyor, and supported by arches which are not more than 8 feet apart. Screw conveyors under gin stands shall be considered guarded by location.

(d)(3) Warning device. A warning device shall be installed in all gins to provide an audible signal which will indicate to employees that any or all of the machines comprising the gin are about to be started. The signal shall be of sufficient volume to be heard by employees, and shall be sounded each time before starting the gin.

[41 FR 10195, Mar. 9, 1976; 41 FR 11022, Mar. 16, 1976; 41 FR 22268, June 2, 1976, as amended at 41 FR 46598, Oct. 22, 1976]

1928.110 Field Sanitation Subpart I –General Environmental Controls

(a) Scope. This section shall apply to any agricultural establishment where eleven (11) or more employees are engaged on any given day in hand-labor operations in the field.

(b) Definitions.

"Agricultural employer" means any person, corporation, association, or other legal entity that:

[i] Owns or operates an agricultural establishment;

[ii] Contracts with the owner or operator of an agricultural establishment in advance of production for the purchase of a crop and exercises substantial control over production; or

[iii] Recruits and supervises employees or is responsible for the management an condition of an agricultural establishment.

"Agricultural establishment" is a business operation that uses paid employees in the production of food, fiber, or other materials such as seed, seedlings, plants, or parts of plants.

"Hand-labor operations" means agricultural activities or agricultural operations performed by hand or with hand tools. Except for purposes of paragraph (c)(2)(iii) of this section, "hand labor operations" also include other activities or operations performed in conjunction with hand labor in the field. Some examples of "hand labor operations" are the hand-cultivation, hand-weeding, hand-planting and hand-harvesting of vegetables, nuts, fruits, seedlings or other crops, including mushrooms, and the hand packing of produce into containers, whether done on the ground, on a moving machine or in a temporary packing shed located in the field. "Hand-labor" does not include such activities as logging operations, the care or feeding of livestock, or hand-labor operations in permanent structures (e.g., canning facilities or packing houses).

"Handwashing facility" means a facility providing either a basin, container, or outlet with an adequate supply of potable water, soap and single-use towels.

"Potable water" means water that meets the standards for drinking purposes of the state or local authority having jurisdiction or water that meets the quality standards prescribed by the U.S. Environmental Protection Agency's National Interim Primary Drinking Water Regulations, published in 40 CFR Part 141.

"Toilet facility means a fixed or portable facility designed for the purpose of adequate collection and containment of the products of both defecation and urination which is applied with toilet paper adequate to employee needs. Toilet facility includes biological, chemical, flush and combustion toilets and sanitary privies.

(c) Requirements. Agricultural employers shall provide the following for employees engaged in hand-labor operations in the field, without cost to the employee:

(c)(1) Potable drinking water.

(c)(1)(i) Potable water shall be provided and placed in locations readily accessible to all employees.

(c)(1)(ii) The water shall be suitably cool and in sufficient amounts, taking into account the air temperature, humidity and the nature of the work performed, to meet the needs of all employees.

(c)(1)(iii) The water shall be dispensed in single-use drinking cups or by fountains. The use of common drinking cups or dippers is prohibited.

(c)(2) Toilet and handwashing facilities.

(c)(2)(i) One toilet facility and one handwashing facility shall be provided for each (20) employees or fraction thereof, except as stated in paragraph (c)(2)(v) of this section.

(c)(2)(ii) Toilet facilities shall be adequately ventilated, appropriately screened, have self-closing doors that can be closed and latched from the inside and shall be constructed to insure privacy.

(c)(2)(iii) Toilet and handwashing facilities shall be accessibly located an in close proximity to each other. The facilities shall be located within a one-quarter-mile walk of each hand laborer's place of work in the field.

(c)(2)(iv) Where due to terrain it is not feasible to locate facilities as required above, the facilities shall be located at the point closest vehicular access.

(c)(2)(v) Toilet and handwashing facilities are not required for employees who perform field work for a period of three (3) hours or less (including transportation time to and from the field) during the day.

(c)(3) Maintenance. Potable drinking water and toilet and handwashing facilities shall be maintained in accordance with appropriate public health sanitation practices, including the following:

(c)(3)(i) Drinking water containers shall be constructed of materials that maintain water quality, shall be refilled daily or more often as necessary, shall be kept covered and shall be regularly cleaned.

(c)(3)(ii) Toilet facilities shall be operational and maintained in clean and sanitary condition.

(c)(3)(iii) Handwashing facilities shall be refilled with potable water as necessary to ensure an adequate supply and shall be maintained in a clean and sanitary condition; and

(c)(3)(iv) Disposal of wastes from facilities shall not cause unsanitary conditions.

(c)(4) Reasonable use. The employer shall notify each employee of the location of the sanitation facilities and water and shall allow each employee reasonable opportunities during the workday to use them. The employer also shall inform each employee of the importance of each of the following good hygiene practices to minimize exposure to the hazards in the field of heat, communicable diseases, retention of urine and agrichemical residues.

(c)(4)(i) Use the water and facilities provided for drinking, handwashing and elimination.

(c)(4)(ii) Drink water frequently and especially on hot days;

(c)(4)(iii) Urinate as frequently as necessary;

(c)(4)(iv) Wash hands both before and after using the toilet; and

(c)(4)(v) Wash hands before eating and smoking.

(d) Dates -

(d)(1) Effective Date. This standard shall take effect on May 30, 1987.

(d)(2) Startup Dates. Employers must comply with the requirements of paragraphs:

(d)(2)(i) Paragraph (c)(1), to provide potable drinking water, by May 30, 1987;

(d)(2)(ii) Paragraph (c)(2), to provide handwashing and toilet facilities, by July 30, 1987;

(d)(2)(iii) Paragraph (c)(3), to provide maintenance for toilet and handwashing facilities, by July 30, 1987; and

(d)(2)(iv) Paragraph (c)(4), to assure reasonable use, by July 30, 1987.

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